

Subject 864

February 16, 2018

## **SUMMARY OF TOPICS**

***The following changes in requirements to the Standard for Standard for Safety for Control Units and Accessories for Fire Alarm Systems, UL 864, are being proposed:***

- 1. Multiple Primary Batteries Providing Greater Reliability***
- 2. Amendments to Class A Requirements for Wireless Pathways***
- 3. Requirement Amendments to Classes B, C and X to Include Wireless Pathways***
- 4. Exception to Repeated Wireless Transmission of Alarm and Supervisory Signals Where End-To-End Acknowledgment is Provided***

## **STP BALLOTS AND ALL COMMENTS DUE: March 19, 2018**

For your convenience in review, proposed additions to existing requirements are shown underlined and proposed deletions are shown ~~lined-out~~.

### **1. Multiple Primary Batteries Providing Greater Reliability**

## **RATIONALE**

Proposal submitted by: Andrew Berezowski, Honeywell International Inc.

Wireless products that are powered by a single battery are currently limited to serving a single initiating or output device because there is no secondary power source. When multiple batteries are employed to provide a secondary power source, the wireless product should be permitted to serve multiple input/output devices. In addition, a provision to acknowledge receipt of signals in two-way communicating systems in lieu of repeatedly transmitting the same signal should be added to the standard in order to save power and reduce RF traffic.

The proposal text provided has been revised to address the comments entered during the balloting of the earlier proposal entitled "Revised requirements for wireless systems and pathways". That ballot closed on 10/23/17.

## **PROPOSAL**

### **55.4 Primary batteries**

55.4.1 ~~A primary battery is~~Primary batteries are not prohibited from being used when all of the following conditions are met:

- a) The capacity of the primary ~~battery~~batteries shall be monitored for integrity. The ~~battery~~batteries shall be monitored while loaded by:

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- 1) Transmission of the transmitter or
- 2) A load equivalent to the load imposed by transmission.

b) A required battery trouble status signal shall be transmitted to the ~~receiver/signaled receiver and indicated at~~ the fire alarm operator interface for a minimum of 7 days before the battery capacity of the transmitter/~~transceiver~~/product has depleted to a level insufficient to maintain proper non-alarm operation of the transmitter/~~transceiver~~/product. ~~The battery trouble signal annunciation at the receiver/control unit is not prohibited from initially being delayed up to 4 hr. The battery trouble signal shall be retransmitted at intervals not exceeding four hours or the product locks in the signal to the control unit until the battery is replaced.~~

c) The battery trouble signal annunciation at the receiver/control unit is not prohibited from initially being delayed up to 4 hr.

d) The battery trouble signal shall be retransmitted at intervals not exceeding four hours or the product locks in the signal to the control unit until the battery is replaced.

Exception: Transmitter/transceiver/receiver combinations utilizing two-way communication where all of the following conditions are met:

1) The transceiver/receiver acknowledges receipt of the change of status signal to the corresponding transceiver/transmitter; and

2) The receiver/control unit annunciates the current trouble status of the corresponding input or output RF device after manual reset of the receiver/control unit.

~~e)e)~~ The battery/~~Batteries~~ (of the transmitter/~~transceiver~~/product) shall be capable of operating the transmitter/~~transceiver~~/product, including the initiating device (if powered by the same battery), for not less than 1 year of normal signaling service before the battery depletion threshold specified in (b) is reached.

~~f)f)~~ Annunciation of the battery trouble status signal at the ~~receiver/control unit~~fire alarm operator interface shall be distinctly different from alarm, supervisory, tamper, and initiating circuit trouble signals. It shall consist of an audible and visual signal that shall identify the affected transmitter/~~transceiver~~/product.

~~e)g)~~ The audible trouble signal of the ~~receiver/control unit~~fire alarm operator interface is not prohibited from being silenceable when provided with an automatic feature to resound the signal at intervals not exceeding 4 hr.

~~f)h)~~ The battery trouble status signal shall persist at the ~~receiver/control unit~~fire alarm operator interface until the depleted battery has been replaced.

~~g)i)~~ Any mode of failure of a primary battery in a device shall not affect any other device.

~~h)j)~~ Where a single battery failure affects the intended operation of the transmitter/transceiver/product, Each each transmitter/transceiver/product serves shall serve only one device and is shall be individually identified at the receiver/control unitfire alarm operator interface.

k) A transmitter/transceiver/product shall be permitted to serve more than one device when all the following are met:

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- 1) Multiple batteries are used
- 2) A single battery failure does not affect the operation of transmitter/transceiver/product
- 3) Each battery shall be individually monitored for battery depletion as described in (a)
- 4) Each battery upon reaching depletion shall cause the transmitter/transceiver/product to transmit a low battery trouble signal as described in (b)
- 5) Each transmitter/transceiver/product shall be individually identified at the fire alarm operator interface

## 2. Amendments to Class A Requirements for Wireless Pathways

### RATIONALE

Proposal submitted by: Andrew Berezowski, Honeywell International Inc.

Disabling the transceiver of the device that is transmitting is not equivalent to disabling a communications path. Disabling the transceiver of a wireless device is analogous to disabling the communication circuitry in a wired device - that is not the same as introducing a fault in the communications path or wiring. The text of this proposal refers to the text of the proposed revision of Section 55.4 (subject entitled "Multiple Primary Batteries Providing Greater Reliability"). The proposed Class A revisions are intended to achieve the following:

1. Clarify that the redundant path in a wireless system consists of a wireless radio channel.
2. Make Class A pathway requirements for wireless systems equal to those of wired systems
3. Require a trouble condition only when two paths/channels are no longer available. Wireless mesh systems and frequency hopping systems are capable of providing many redundant paths. Trouble should not be required as long as there are at least two paths present.

The proposal text provided has been revised to address the comments entered during the balloting of the earlier proposal entitled "Revised requirements for wireless systems and pathways". That ballot closed on 10/23/17.

### PROPOSAL

56.1.8 Pathways designated Class A shall operate as follows:

- a) A redundant path/channel is included.
- b) Operational capability continues past a single open, and the single open fault shall result in the annunciation of a trouble signal.
- c) Operational capability in a radio frequency and/or wireless pathway/channel continues during a single fault consisting of each of the following applied separately: ~~loss of a transceiver, loss of a repeater, application of an adverse condition at a transceiver/repeater. The fault shall result in the annunciation of a trouble signal.~~